

## Horticulture 2014 Newsletter No. 3 January 21, 2014

Video of the Week: [Secret Garden Design Elements](#)

### FRUIT

#### Winter Hardiness of Fruit Plants



Kansas had a blast of very cold temperatures a couple of weeks ago that may damage fruit plants. Peach trees often have fruit bud damage when temperatures reach 5 to 10 degrees below zero. The tree will be fine as the leaf buds are undamaged.

Note that damage to fruit buds are progressive. In other words, a temperature of minus 10 for a short period will cause less damage than a sustained reading of 10 below zero. Also, the buds will show progressively more damage the further below

minus 10 degrees the temperature reaches.

Thornless blackberries also can be damaged at 5 to 10 degrees below zero but this is variety dependent as some of the newer thornless varieties are more hardy. Also, thorny types are often more hardy than the thornless types. With blackberries, we are not worried about the fruit buds but the fruiting canes. Cold temperatures can kill all aboveground growth. However, the plant will survive and grow new canes from the crown that will fruit next year.

Apples are hardier, and fruit buds are usually not damaged unless the temperature reaches minus 20 to minus 25 degrees. Red Delicious is one of our most tender varieties and can be damaged when temperatures reach minus 15. As with peaches, the tree will be fine at these low temperatures; only the fruit buds are at risk.

What about wind chill damage to fruit plants? Wind chills can have a profound effect on warm-blooded animals' ability to keep warm. Plants do not respond to wind chill indexes the same as warm-blooded animals because they do not need to maintain a temperature above that of their surroundings. For example, a wind chill of 40 degrees below zero at a temperature of zero degrees Fahrenheit will not cause any more cold injury to plant tissue than a wind chill index of 20 degrees below zero at zero degrees Fahrenheit. Although cold temperatures may not damage plants, wind can desiccate (dry out) plant tissues. Plant tissues require moisture to survive, and

high wind velocity can cause moisture loss. This desiccation may be great enough to injure or even kill tissue, particularly the smaller size wood as in peach twigs, apple spurs or blackberry canes. There is no scientific evidence to show that an increasing wind chill index will directly increase plant damage due to cold injury. (Ward Upham)

## VEGETABLES

### Tomato Test Part 2



Before we get into this test, let's talk about the definition of an heirloom variety. First of all, heirloom varieties are always open-pollinated and will come true from seed. This eliminates all hybrids. Now the definition gets a bit murkier. I have seen heirloom varieties defined as those that were introduced before 1940, varieties that have been in circulation for over 50 years and those that come from varieties passed down within a family for several generations. There are also other definitions that would include more recent

introductions. For our purposes, we will include varieties that have been handed down within a family for several generations and/or have been in circulation for over 50 years.

This week we will look at averages and compare heirloom to modern varieties and compare determinate to indeterminate varieties. The results are averages for all varieties included in the study except small-fruited types such as cherry tomatoes and romas.

#### Comparing Heirloom and Modern Varieties

Comparing average weight of individual fruit between heirloom and modern varieties.

Heirloom: 7.1 ounces

Modern: 5.9 ounces

Comparing average yield per plant between heirloom and modern varieties.

Heirloom: 13.5 pounds

Modern: 16.5 pounds

So modern varieties tend to be smaller than heirlooms but the plants bear more fruit.

We mentioned last week that heirlooms often lack the disease resistance that modern varieties possess. The most devastating diseases are the root rots, verticillium and fusarium wilts. Once these diseases become established in a field, they will remain present for well over 10 years and will kill any non-resistant tomato plant. However, we now have a new trick that allows us to grow non-resistant heirlooms in infested fields. The trick is grafting our non-resistant heirloom on a resistant rootstock. These rootstocks will grow fine in wilt-infested soils and will not pass the disease onto the heirloom. Though expensive, grafted plants can allow a gardener to grow heirlooms that would be killed by a wilt disease.

## Comparing Indeterminate and Determinate Varieties

Remember indeterminate plants are large and rangy but tend to produce fruit over a longer period of time than determinate types.

Comparing average weight of individual fruit between indeterminate and determinate varieties.

Indeterminate: 8.6 ounces

Determinate: 6.2 ounces

Comparing average yield per plant between indeterminate and determinate varieties.

Indeterminate: 16.4 pounds

Determinate: 17.1 pounds

Indeterminate plants on average produce larger fruit than determinate types but produce less total pounds per plant. However, since determinate plants are smaller, they can be planted closer together and yield per acre can be much more than indeterminates.

Comparing Modern Indeterminates to Heirloom Indeterminates

This is the last wrinkle in our discussion. All of these are large plants.

Comparing average weight of individual fruit between modern indeterminate and heirloom indeterminates.

Modern Indeterminate: 6.9 ounces

Heirloom indeterminate: 8.1 ounces

Comparing average yield per plant between modern indeterminate and heirloom indeterminates.

Modern Indeterminate: 18.5 pounds

Heirloom indeterminate: 13.9 pounds

Modern indeterminates produce smaller fruit but more total yield than heirloom indeterminates.  
(Ward Upham)

## ORNAMENTALS

### Start Trees Off Right



Research from K-State's John C. Pair Horticultural Center has quantified the effect of controlling grasses around newly planted trees. Jason Griffin, William Reid, and Dale Bremer conducted a study to investigate the inhibition of growth of transplanted, seedling trees when lawn grasses were allowed to grow up to the trunk. There were five treatments, including three with different species of grass:

1. Bare soil maintained with herbicides.
2. Area under tree mulched 3 inches deep.
3. Tall fescue allowed to grow under tree.
4. Bermudagrass allowed to grow under tree.
5. Kentucky bluegrass allowed to grow under tree.

All treatments were applied to Eastern redbud seedlings as well as to pecan seedlings. All trees were fertilized according to recommendations and watered during the growing season with up to 1 inch of water if rainfall was deficient. At the end of two years, trees were measured and harvested. Data was taken on caliper (diameter) 6 inches above the ground, weight of aboveground portions of the tree, leaf area, and leaf weight. There were no differences in any measure between the mulched treatment and the bare soil treatment for either tree species. All measures showed significant growth increases if lawn grasses were controlled around the tree.

Results include the following:

1. Caliper: Caliper measures 6 inches above the soil surface were twice as large for plots without grass than for those with either fescue or bluegrass, but only 50% larger when compared to the bermudagrass plots.
2. Top growth weight: Redbuds showed a 300% weight advantage for plots with grasses controlled than those without. Pecans showed a significant 200% increase.
3. Leaf area and leaf weight: Leaf areas were 200% larger in plots without grass competition and leaf weight showed a 300% increase.

The obvious conclusion from this study is that grasses must be controlled under a newly transplanted tree to get the best possible growth. Though there were no differences in growth whether mulch was used or not, you may still wish to mulch for aesthetic reasons or to help control weed growth. How far from the trunk should the grasses be controlled? Try a minimum of 3 feet. (Ward Upham)

## MISCELLANEOUS

### Bird Feeding



Severe winter weather is not only hard on people but can be a life and death struggle for birds. Though birds require water and shelter, food is often the resource most lacking during cold weather.

Many different bird food mixes are available because various species often prefer different grains. However, there is one seed that has more universal appeal than any other: black oil sunflower. If you are new to the bird-feeding game,

make sure there is a high percentage of this seed in your mix. White proso millet is second in popularity and is the favorite of dark-eyed juncos and other sparrows as well as the red-winged blackbird.

As you become more interested in bird feeding, you may want to use more than one feeder to

attract specific species of birds. Following is a list of bird species with the grains they prefer.

- Cardinal, evening grosbeak and most finch species – sunflower seeds, all types.
- Rufous-sided towhee – white proso millet
- Dark-eyed junco – white and red proso millet, canary seed, fine cracked corn.
- Many sparrow species – white and red proso millet.
- Bluejay – peanut kernels and sunflower seeds of all types.- Chickadee and tufted titmouse – peanut kernels, oil (black) and black-striped sunflower seeds.
- Red-breasted nuthatch – oil (black) and black-striped sunflower seeds.
- Brown thrasher – hulled and black-striped sunflower seeds.
- Red-winged blackbird – white and red proso millet plus German (golden) millet
- Mourning dove – oil (black) sunflower seeds, white and red proso plus German (golden) millet.

Extended cold periods can also make water unavailable. A heated birdbath can be a tremendous draw for birds during times when all other water is frozen. Energy use is usually less than what most people expect IF the heater has a built-in thermostat.

If you would like more information, Chuck Otte, Agriculture Extension Agent for Geary County has a series of backyard birding guides at <http://gearycountyextension.com/NRMW.htm> (Ward Upham)

### **Bringing Houseplants Down to Size**



We sometimes receive calls from gardeners who wish to donate houseplants that have outgrown their location. In most cases, we don't have room to accept plants and suggest that people bring them down to size by air-layering. Air-layering is a process where a branch or the main stem is encouraged to form roots while still attached to the parent plants. After rooting, the original plant is discarded and the newly rooted one is potted as a replacement. Though this propagation technique cannot be used on all

houseplants, it does work well on many that tend to outgrow their boundaries including croton, dracaena, dieffenbachia, Norfolk Island pine, rubber plant and schefflera.

Choose wood that is about 1 year old. Older or more immature wood often roots poorly, if at all. Any place on the stem that is of the proper maturity can be used, but a convenient location is often about 12 inches from the tip. Following are the steps required for air-layering:

- Leaves should be removed around the area to be air-layered.
- Wound the stem. This can be done by making a slanting cut upward, an inch or more in length and halfway through the stem. Place a portion of a toothpick in the cut so it cannot close and heal. If the stem is seriously weakened, use a stick "splint" to prevent breakage. Another method that works well is to strip the bark completely around the stem in a band ½ to 1 inch

wide.

- Apply rooting hormone to the wounded surface of the cut or the stripped portion of the branch.

- Pack a baseball-sized wad of moist, unmilled sphagnum peat moss around the wounded area so it forms a ball. This is where new roots will form. It is important to use the long, stringy unmilled peat moss rather than the more common milled material so peat moss does not fall away from the stem when released. Even unmilled peat moss may need to be secured with string to keep it in place.

- Wrap the ball of sphagnum peat moss with clear plastic wrap. Be sure to use enough wrap so that the plastic overlaps and prevents the ball from drying out. Secure the top and bottom edges of the wrap closed with electrical tape, string or other convenient fasteners.

Roots may appear in as little as a month though it may take much longer for the plant to be ready for transplanting. Check periodically to be sure peat moss remains moist. Water if needed. When roots have filled the peat moss, the plant is ready to be severed from the parent and transplanted. (Ward Upham)

### **Growing Your Own Firewood**



With high energy costs, some homeowners are turning to wood for heat. I'm one of them. Fortunately, the farm has a number of volunteer trees that can be used for firewood. The most common species is Siberian elm but there are also some hackberry and mulberry. Though there may be enough volunteer trees to supply the need, better firewood trees would reduce the time and effort required to supply the wood needed. Actually, storm-damaged trees or trees in the wrong place will always provide a measure of the demand but a

significant supply could be supported by a firewood "plantation."

Plant species is an important consideration as not all trees have the same density and therefore heat value. The greater the dry weight, the better. The highest value for trees commonly found in Kansas is Osage Orange (Hedgeball tree) at 4,800 pounds per cord. Osage orange has a gnarly growth habit and a nasty set of thorns. This species also sparks which isn't a problem in a wood-fired boiler but certainly would be in an open fireplace.

Black locust is next with 4,200 pounds per cord. Black locust is a fast grower and also has excellent burning qualities and makes a nice bed of coals. However, it is hard to split, suckers, and has some relatively small thorns, especially on young trees. Bur oak and red oak come in at 3,800 and 3,500 pounds per cord respectively but are not fast growers. Mulberry, however, has the same weight as red oak but grows more quickly. Silver maple has less heat value (3,000 pounds per cord) but is a very fast growing tree.

Black locust would be my first choice for this purpose though you may wish to plant rows of several species. However, each situation is different and another species may work better for you.

So how do you set out your plantation? Dr. Wayne Geyer, one of our retired forestry professors, has done many woody biomass studies over the past 35 years. Following are some recommendations that have come out of his studies.

- Plant locust a few rows in from the field edge to reduce suckering in the field.
- Plant on a close spacing, 4 to 6 feet apart. This maximizes yield and reduces side branching.
- Control weeds the first two years.
- Harvest every 5 years, most trees will resprout and can be reharvested.
- Plant about 1 acre per year for 5 years if you wish to supply the majority of the firewood needed to heat your home. (Ward Upham)

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